

Science

The Science Department strongly recommends that college-bound students consider taking at least Biology, Chemistry I, and Physics in their High School curriculum. Students should also consider taking at least one or two additional science courses as electives.

Biology

10TH GRADE

1 YEAR, 1 CREDIT

Biology is the standard entry-level science course for sophomores. The course is laboratory-centered and investigates the major themes of biological science including: the nature of the cell, the chemistry of living systems, inheritance and a study of DNA, plant and animal anatomy and physiology, and classification of living things. The course may require reading and writing assignments, dissections, projects, group activities, oral presentations, and field work.

Advanced Biology

10TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITE

**A OR B IN PHYSICAL SCIENCE,
W/TEACHER RECOMMENDATION**

Pre-AP Biology differs from standard Biology in that it is more independently laboratory-centered and investigates in depth the major themes of Biological Science. The course will require writing assignments, on-line lab and investigations, as well as dissections and projects. Critical thinking is key to this course and will be demonstrated in a variety of ways.

Advanced Earth Science (GOMA)

11TH, 12TH GRADE

1 YEAR, 1 CREDIT

This is a Physical Science course designed to give the student an understanding of the earth, its processes, history and place in the universe. Major emphasis is on geology, oceanography, meteorology, and astronomy. Man's influence on his environment, locally and globally, is explored. The students will gain understanding of the basic systems, their changes, and direct and indirect relation to themselves. (Includes hands-on and computerized laboratory experiments.)

Human Anatomy and Physiology

11TH, 12TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITE

**"C" OR BETTER IN BIOLOGY
W/TEACHER RECOMMENDATION**

Human Physiology provides students with an understanding of the structure and function of the components of the human body. Instruction includes anatomical terms, cell and tissues, and the systems of the human body including skeletal, muscular, nervous, digestive, circulatory, respiratory, reproductive, integumentary, urinary, and endocrine systems. In addition, students study disease and the immune systems, cell organizations, human metabolism, and the anatomy and physiology of the human body. Detailed dissection of an advanced mammal is included.

Physics

11TH, 12TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITES:

**ALGEBRA 1 & 2, GEOMETRY,
CURRENTLY TAKING/ALREADY TAKEN TRIGONOMETRY**

Physics is a Physical Science course investigating the relationships (through rigorous calculations) between matter and energy. The ultimate goal of Physics is to explain the physical universe in terms of basic interactions and single particles. The

areas studied are classic mechanics (forces of Newton's Laws of motion), gravity, energy and thermodynamics (energy, work, power and thermal energy), fluids, waves and sound, optics (light and reflection) the atom and nuclear energy. The course strongly emphasis student master of critical thinking skills and Algebra II. The course provides and atmosphere which fosters guided inquiry and student-centered learning.

Chemistry I

11TH, 12TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITES:

ALGEBRA I

Chemistry I provides students with basic understanding of the composition, properties, and changes associated with matter. Emphasis is placed on the scientific method, the basic laws and theories on matter, atomic structure, molecular bonding, the study of solutions, reactions and their rates, equilibrium, acids/bases, and introduction to organic chemistry. Students are also involved in laboratory experiences that emphasize and demonstrate chemical properties. Small-scale chemistry procedures are used in laboratory exercises.

Pre-AP Chemistry

11TH GRADE

1 YEAR, 1 CREDIT

PRE/CO-REQUISITES:

ALGEBRA II

Pre-AP Chemistry is designed to prepare students for the AP Chemistry course. The curriculum covers such topics as structure of matter, stoichiometry, chemical bonding, molecular geometry and chemical equilibria. The course strongly emphasizes student mastery of critical thinking skills and Algebra II. The course provides an atmosphere which fosters guided inquiry and student-centered learning.

AP Chemistry

12TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITES:

**B OR BETTER IN CHEMISTRY I,
ALGEBRA I, GEOMETRY I, AND ALGEBRA II**

The AP Chemistry course is designed to be the equivalent of the general Chemistry course in the 1st year of college. The curriculum covers topics such as chemical equilibria, chemical kinetics, thermodynamics, the structure of matter, electrochemistry and the kinetic theory of gases. The course strongly emphasizes student mastery of critical thinking skills and provides an atmosphere which fosters guided inquiry and student-centered learning. A summer assignment is required for this course. Continued outside reading and assignments require students to budget several hours of time each week for homework.

Ecology

11TH, 12TH GRADE

1 YEAR, 1 CREDIT

PREREQUISITES

BIOLOGY I

This course is a laboratory investigative approach on ecological interactions and man's use of the earth and its resources. This class will identify ecosystems and their current condition with regards to human impact, both now and in the future. Water and soil analyses will be conducted in the lab.

AP Environmental Science

11TH, 12TH GRADE
PREREQUISITES

1 YEAR, 1 CREDIT
A OR B IN BIOLOGY
TEACHER RECOMMENDATION, CONTRACT
CHEMISTRY I (MAY BE CONCURRENT)

The AP Environmental Science course is designed to be the equivalent of a one-semester introductory college course in environmental science. The goal of the AP Environmental Science

course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human made, to evaluate the relative risks associated with these problems, and to examine solutions for resolving these problems. Field trips and labs are an important part of the course, and participation is required. All students are required to take the AP exam for college credit.

Health Science Technology

The Medical Professions Education tract is designed to provide students who are interested in any medical profession with a foundation towards completion of an associate degree in a variety of medical fields. Students who meet designated criteria may receive college credit.

Introduction to Medical Professions

10TH, 11TH GRADE

1 YEAR, 1 CREDIT

This course is designed to provide students with basic information and skills needed for a career in the health care field. In this comprehensive course, emphasis is given to the development of competencies related to select student vocational organizations (ours is Health Occupations Students of America), study skills, and personal qualities of the health care worker. An overview of medical history and events, health care systems, health care careers, medical ethics and legal responsibilities, and professionalism is also covered.

Medical Professions I

11TH, 12TH GRADE

1 YEAR, 2 CREDITS

PREREQUISITE: INTRO TO MEDICAL PROFESSIONS

NOTE:

This block meets two class periods and includes Medical Terminology, Human Anatomy and Physiology and Medical Procedures.

The **Medical Terminology** course assists students in developing the language used for communication in the health care profession. Areas of study include fundamental word structures, terminology for diagnostic and imaging procedures, and general medical terms for the body systems.

Human Anatomy and Physiology focuses on the anatomy and physiology of human body systems and the diseases of those systems. The area of study includes the basic structure and physiology of the human body for the following body systems: integumentary, skeletal, muscular, circulatory, lymphatic, nervous, sensory, respiratory, digestive, urinary, endocrine, and reproductive. This course is generally taken after Introduction to Medical Professions.

In **Medical Procedures**, students develop specific skills needed in health professions. Emphasis is given to the development of competencies related to the following areas: safety, infection control, vital signs, CPR and first aid, medical math, abbreviations, and charting.

Medical Professions II

12TH GRADE

1 YEAR, 2 CREDITS

PREREQUISITES: TEACHER RECOMMENDATION
INTO TO MEDICAL PROFESSIONS
MEDICAL PROFESSIONS I

NOTE:

This course meets for two class periods.

The **Medical Clinical Internship** course is designed to provide students with job-shadowing experiences within various areas of health care. There are several job-shadowing settings that may be utilized, i.e., hospitals, health clinics, physicians' offices, dental clinics, nursing homes, and any other healthcare-related job site. **HOSA membership (\$15 dues) is required for this class. Students must also have their own transportation.**

